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THE EXCAVATIONS AT TYUONYI, NEW MEXICO, IN 1908¹

By EDGAR L. HEWETT

IT will be of interest to know that the work of the School of American Archæology in the Rito de los Frijoles during the summer of 1908 was a continuation of the activities of the Archæological Institute of America commenced in that region a quarter of a century ago. The first work of the Institute in American archeology was the sending of Mr A. F. Bandelier to the Southwest in 1881. The results of his activities there have been of the greatest service to all who have followed him in that region. I take especial pleasure at this time in acknowledging my indebtedness to the distinguished scholar who blazed the way for all that the rest of us have been permitted to do. His reports are indispensable guide-books to the archeology of the Southwest. Bandelier was the Pausanias of the Rio Grande valley.

In this paper I shall endeavor, by extensive pictorial treatment, to enable the reader to see something of the environment which nurtured the peculiar type of culture that arose in this portion of the Southwest in pre-Spanish times.

I desire first to call attention to the character of the country by which the Rito de los Frijoles is surrounded. The Pajarito plateau, lying between the Jemez mountains and the Rio Grande valley, is covered by a blanket of volcanic tufa which has been gashed into thousands of fragments by ages of torrential erosion. Those detached masses have been further sculptured by the winds into castle-like battlements and the walls honeycombed with natural caves. Looking across this plateau from any eminence, the eye sees hundreds of these castellated buttes, geological islands, rising up from a plain that has been denuded of all other portions of this

¹ Read at the annual meeting of the Archæological Institute of America, at Toronto, Canada, December 30, 1908.

covering. These masses present sheer precipices on the southern exposure of from fifty to five hundred feet in height, rising above a sloping talus which gives down to the dry arroyos of the cañon bottom.

Starting down the Rio Grande from a point opposite the Tewa Indian pueblo of San Ildefonso, let us notice the geological structure of the rim of this plateau as it is presented to the observer in passing down White Rock cañon. In places enormous masses stand out against the horizon line, along the base of which we find the cobblestone and gravel of the shore-line of the Miocene lake that once filled the basin north of Santa Fé, known as the Española valley. Prior to the establishment of the Rio Grande drainage this basin contained lakes or marshes covering an area of perhaps fifty miles long by twenty in breadth. In the Santa Fé marls of the ancient lake bed we find fossil remains of the mammoth, the mastodon, the three-toed horse, several extinct dogs, and vultures. Passing on down the valley of the Rio Grande, which enters White Rock cañon just below the pueblo of San Ildefonso, varying aspects of the geological structure of the plateau rim are to be seen. In the cañon opening into the Rio Grande at this point we encounter basaltic extrusions of recent geologic time. An example of this is seen at the well-known Black mesa, which rises boldly from the valley on the eastern bank of the Rio Grande just north of San Ildefonso. This is the Tuyo of Tewa mythology, the Sacred Fire mountain on which the Indians of Pohwoge (as San Ildefonso is called by the natives) built their pit-dwellings and lived through the historic sieges of the early period of Spanish occupancy, and to which to this day they make pilgrimages and present offerings at their ancient fire shrine. These black basaltic extrusions bear no geological relation to the yellow tufa formations that cover the major part of the plateau. That they are more recent in origin is shown by the fact that the under-side of the tufa cap is thoroughly baked at the point of contact with the basalt, showing that the volcanic tufa was not laid down upon a cold surface, but that, on the contrary, the basalt has been thrust up from below at a time subsequent to the deposit of the tufa, which belongs to a geological period very remote. The age of the New Mexico basalts affords

an interesting problem and one that is constantly being brought forward in connection with the question of the age of man in the Southwest. Geologists hold that the most recent volcanic formations of New Mexico may not exceed from eight thousand to twenty thousand years of age. However, we find as yet no evidence of the existence of man in this region contemporary with the most recent volcanic activity. We are constantly hearing of specimens of

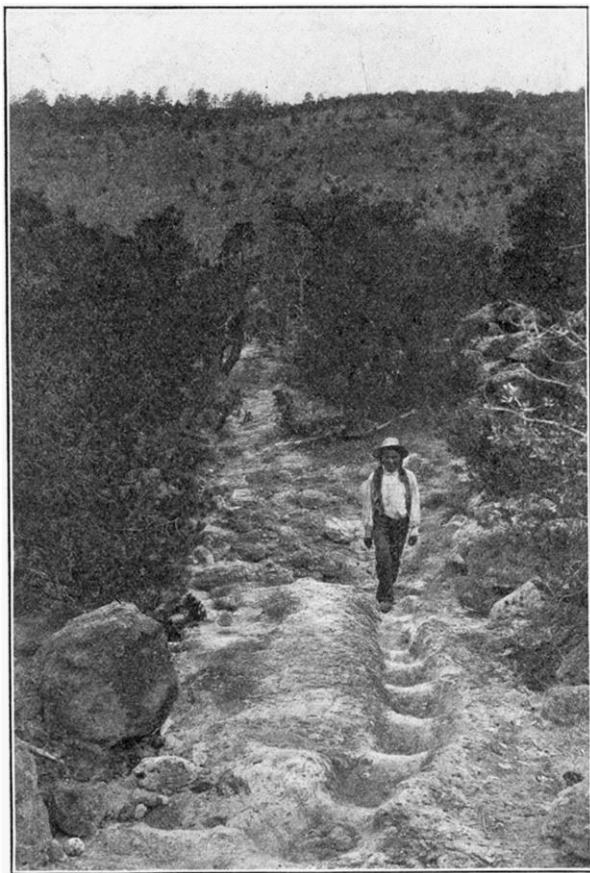
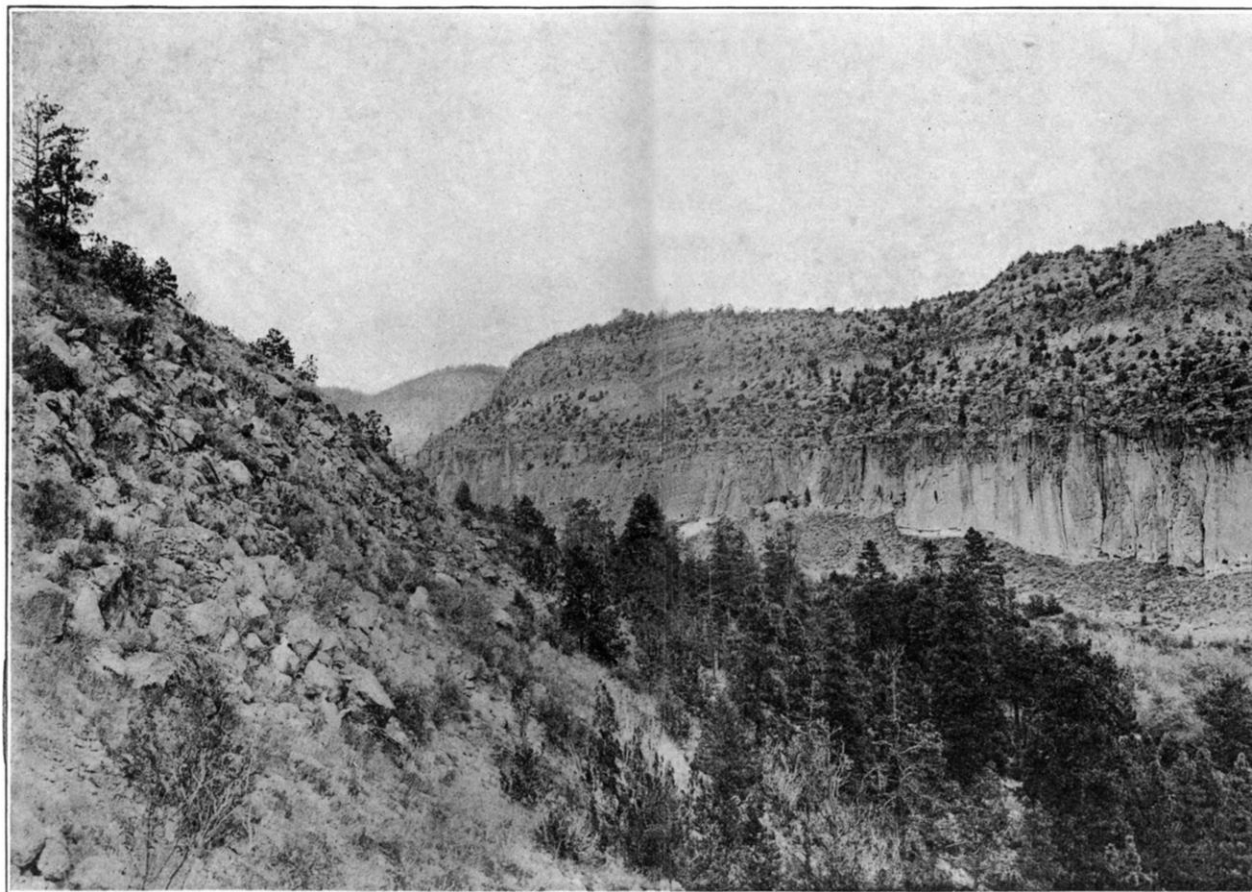
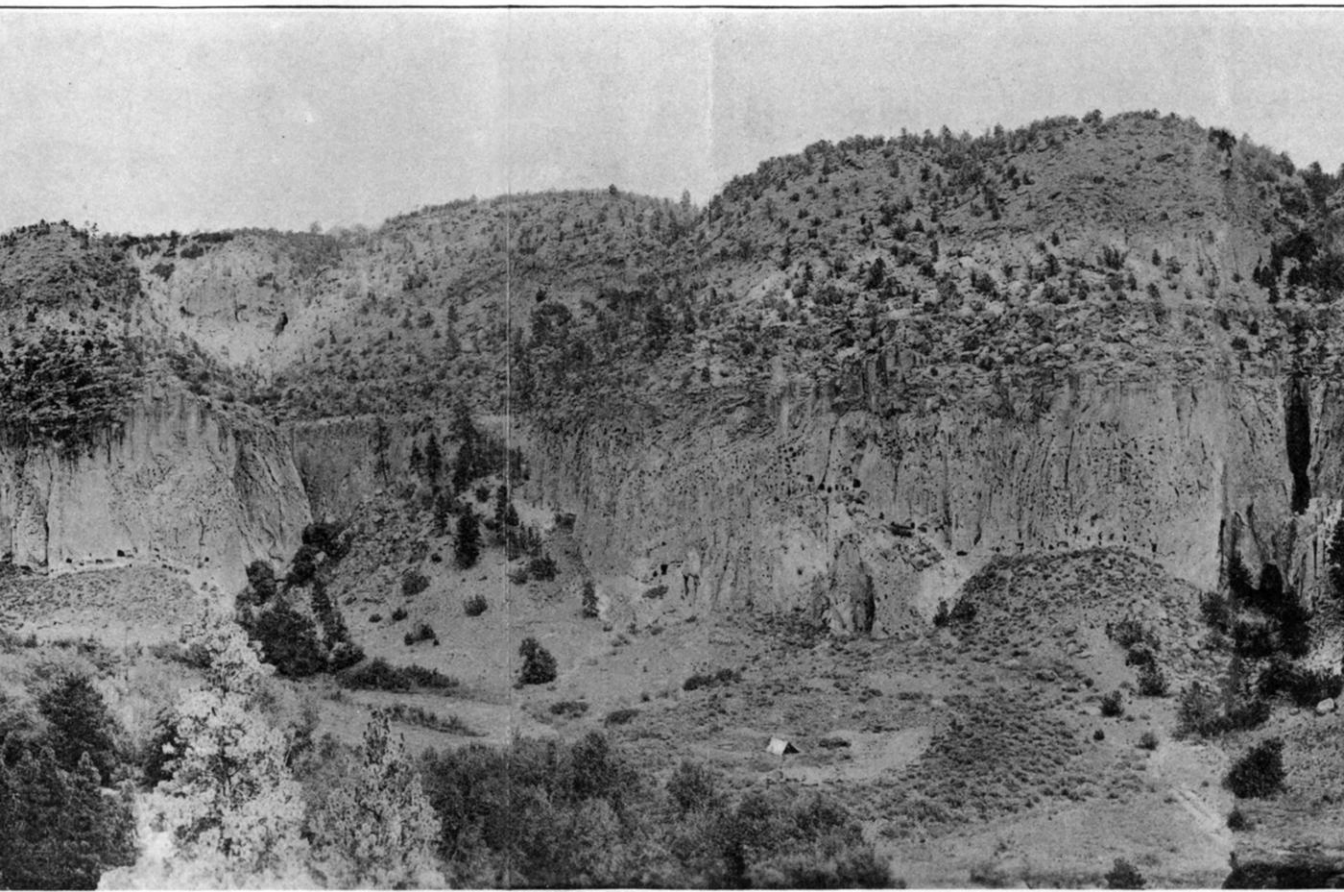


FIG. 82. — The northern trail.

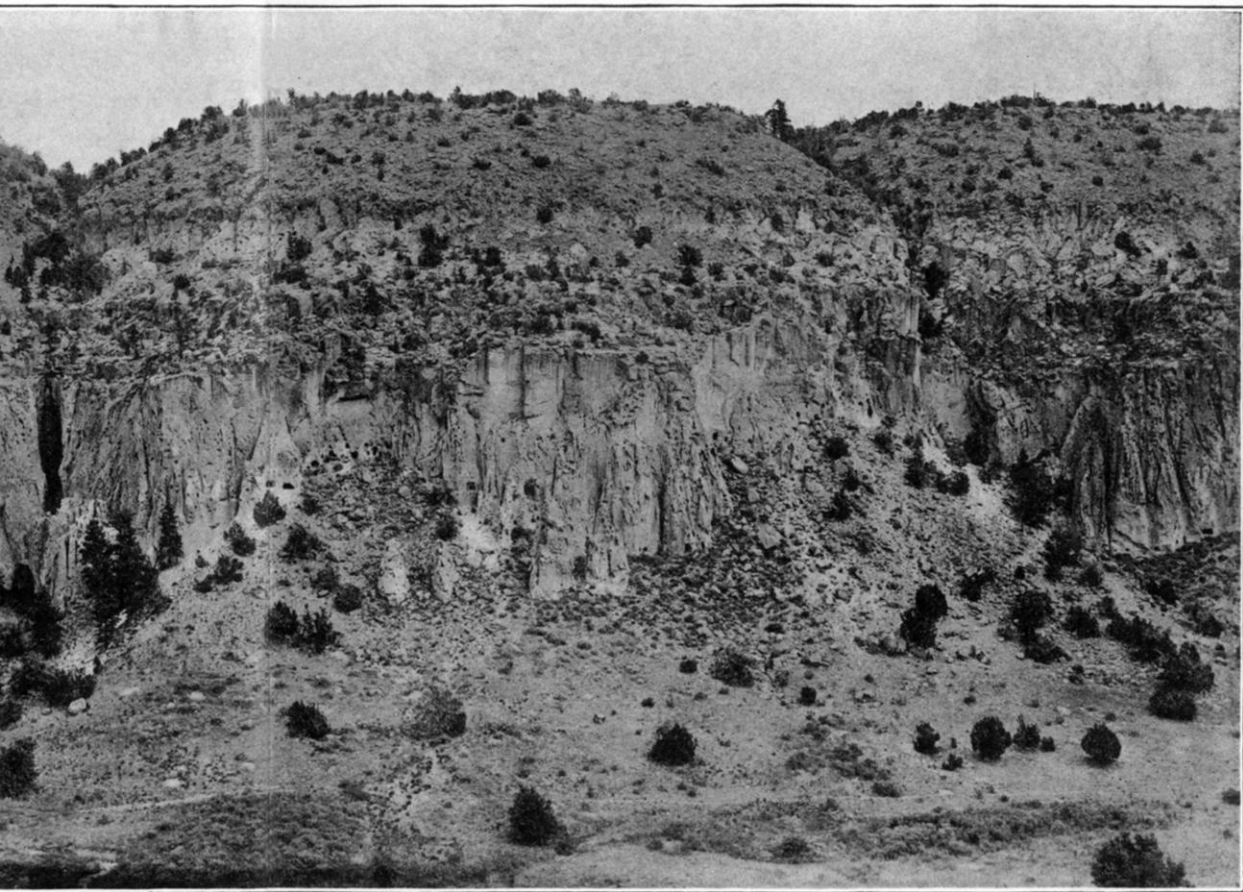
charred human bones and charred corn being found imbedded in the lava. Evidence of the existence of man at this period in the Southwest would not be unwelcome, but it must be stated that not a single case of the kind above mentioned has been substantiated by the facts upon careful investigation. Examination of these specimens has in every case shown that the material in which they are imbedded is not basalt but a material totally different

chemically, undoubtedly a fused adobe. Such specimens might be produced at any time by the burning down of a building in which





PANORAMA OF EL RITO DE LOS FRIJOLES



corn or human bones were in contact with adobe soil. The adobe fuses readily and gives a product which superficially bears considerable resemblance to basaltic lava.

Passing on down the valley of the Rio Grande, its gorge becomes deeper until we reach the point at which the cañon of the Rito de los Frijoles enters. Here White Rock cañon has a depth of nearly a thousand feet. It is not possible to enter the valley of the Rito de los Frijoles by passing up its gorge from the Rio Grande. The narrow passage is blocked by two waterfalls which have a leap respectively of about seventy and ninety feet. One must climb to the mesa top by the old Navaho trail south of the Rito, follow this a mile or two toward the mountains, and then descend by an ancient rock trail into the gorge at the site of the old Tyuonyi villages. Another ancient trail enters the cañon from the north (figure 82).

Of all the beautiful and romantic spots in the Southwest none surpasses the Rito de los Frijoles (plate xx). The part of it of especial interest to us is the lower five miles of its course, and of this portion a stretch covering less than two miles has the archeological interest which claims our attention at the present moment. The flood-plain in the bottom of the cañon nowhere exceeds an eighth of a mile in width. The streamlet which issues from the Jemez mountains, ten miles above, carries its waters during the entire year to the Rio Grande. It is never-failing. It has endured for ages through the progressive desiccation that has extended over the entire Southwest, leaving the valley of the Rito one of the few spots still habitable in a region long since depopulated because of the failure of water. The former populous condition of this plateau is attested by the myriad remains of cliff-houses and ancient pueblos that occupy every valley and mesa top from the Chama river to the Cochiti and between the Jemez mountains and the Rio Grande.

A glance at the structural map (plate xxii) will give a fairly clear impression of the geological formation of the cañon of the Rito. The northern wall is a vertical escarpment of from 200 to 300 feet high, rising above a sloping talus. The southern wall has a more gentle slope, is lightly timbered, and nowhere presents the long, continuous, vertical escarpments seen on the northern wall.

The ancient remains in the Rito consist of four community houses in the valley and one on the mesa rim near the southern brink of the cañon, and a series of cliff-houses extending for a distance of a mile and a quarter along the base of the northern wall. These cliff-houses are of the excavated type sometimes known as "cavate lodges," but this term is one that should be rejected from the nomenclature of Southwestern archeology. The excavated cliff-house is as much a true cliff-dwelling as is the pueblo built in the natural

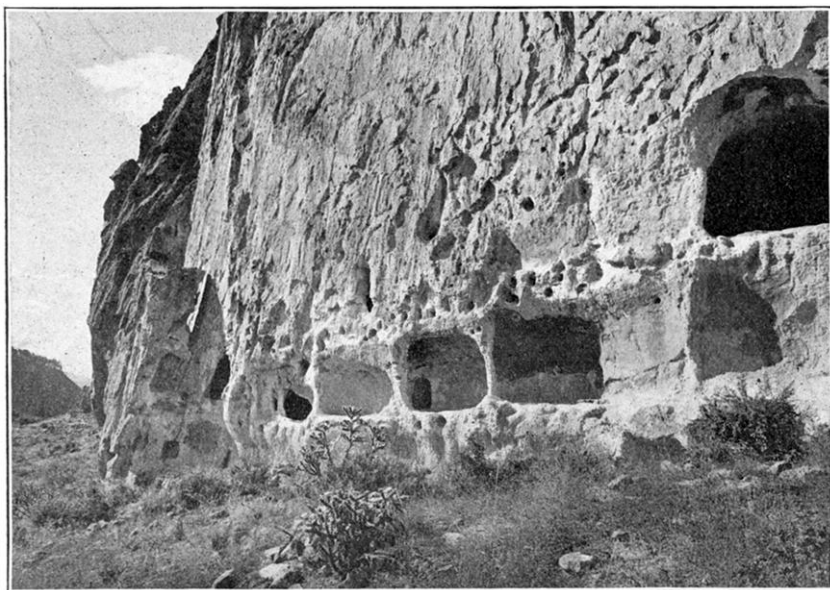
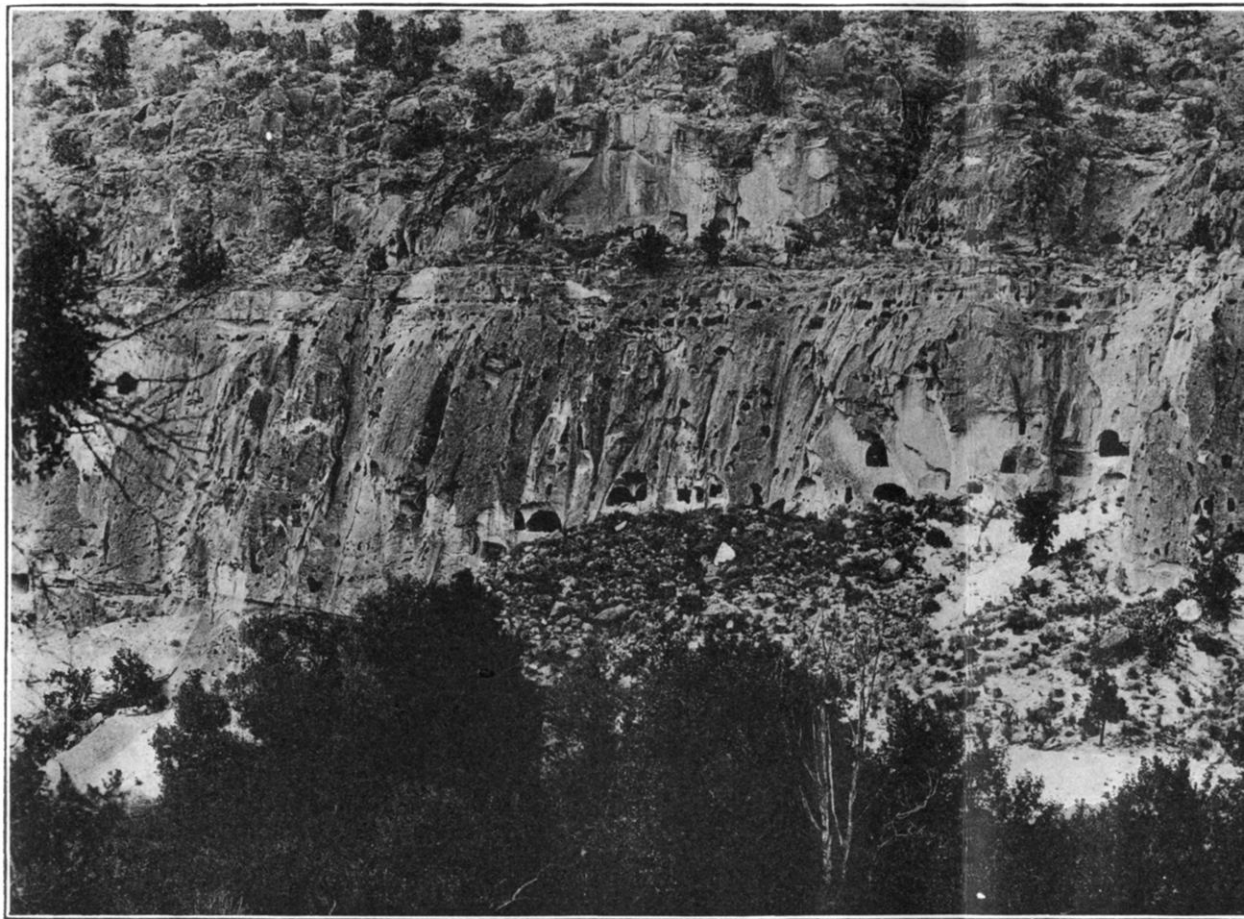
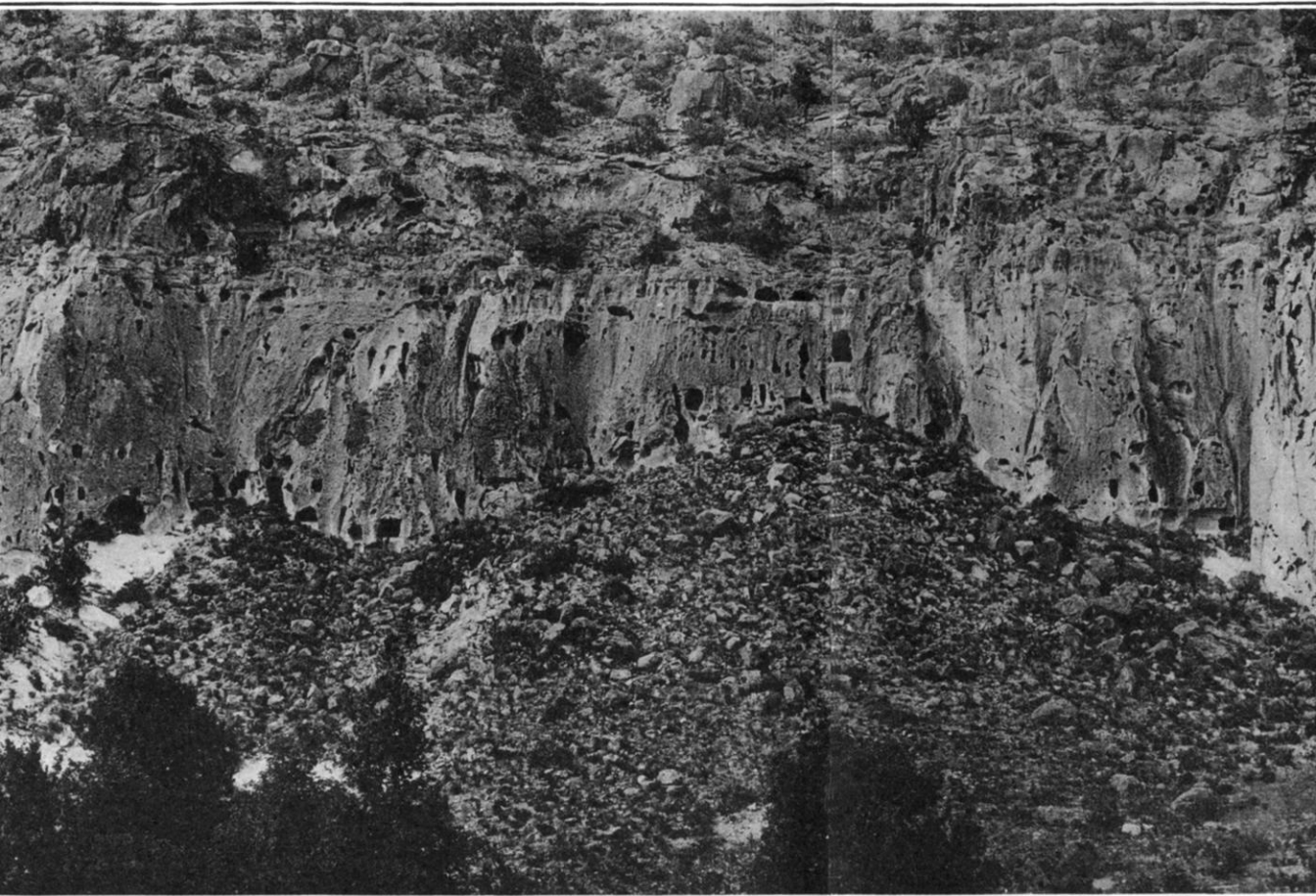


FIG. 83. — Alcoves in cliff, originally forming back rooms of talus pueblo.

cave. The true character of the so-called "cavate lodge" has not been fully understood. Some of these excavated rooms have been used as domiciles independently of any construction upon the talus against the cliff, but through the entire Pajarito region, where this type of cliff-dwelling culture reaches its culmination, the excavated rooms were not generally used as independent domiciles: they served more often as back rooms of the houses built upon the sloping talus against the cliff wall (figure 83). In the Rito de los Frijoles thirteen of these talus villages were identified and sufficient





PANORAMA OF TALUS VILLAGES—GROUP B

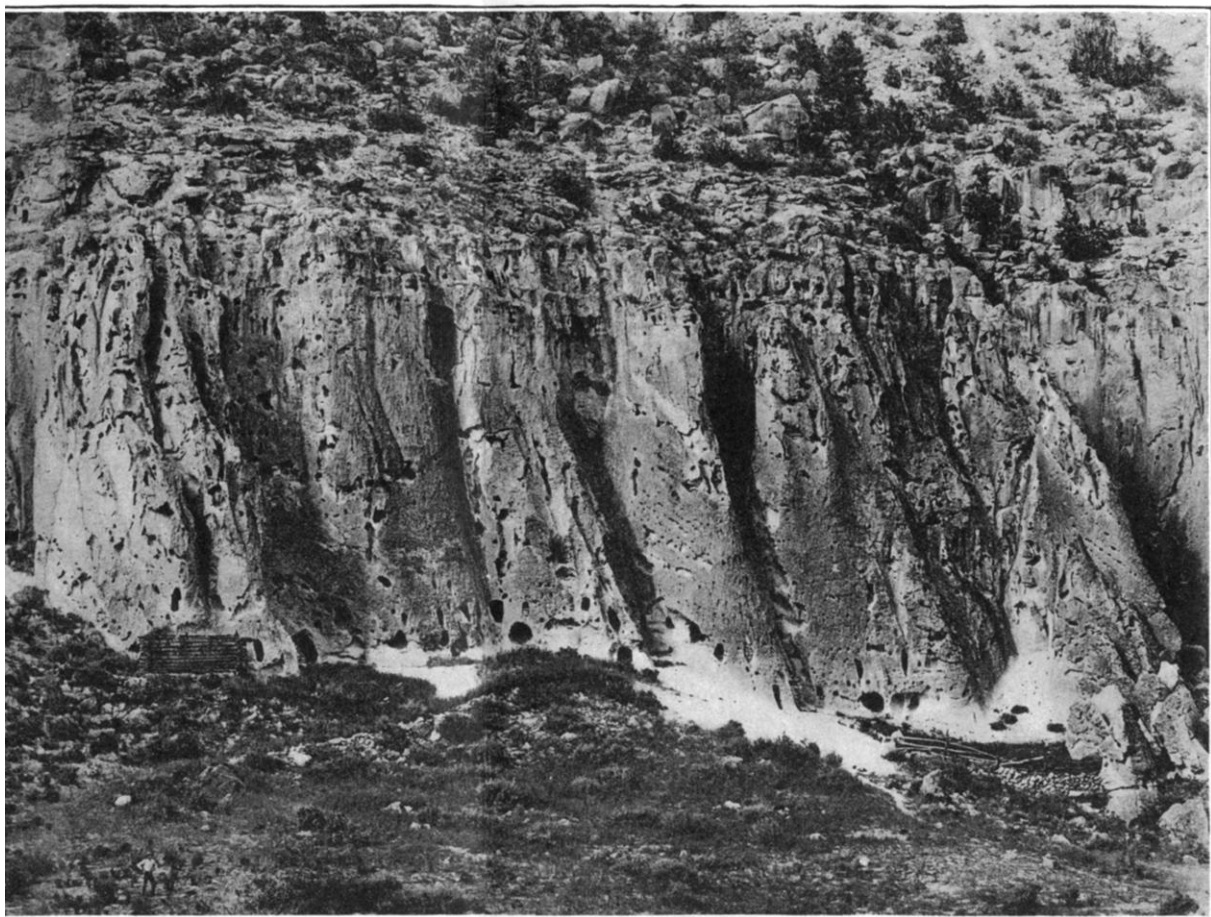




FIG. 84. — Restoration of Group D.

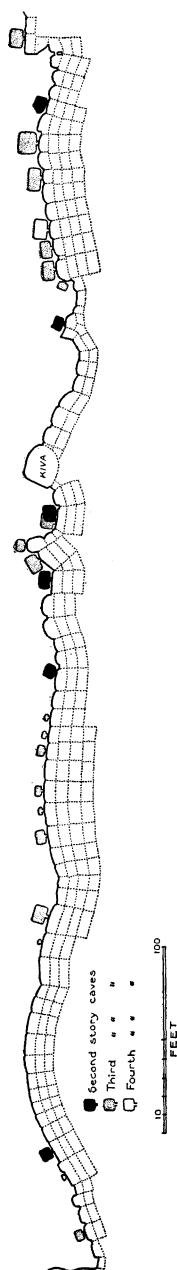
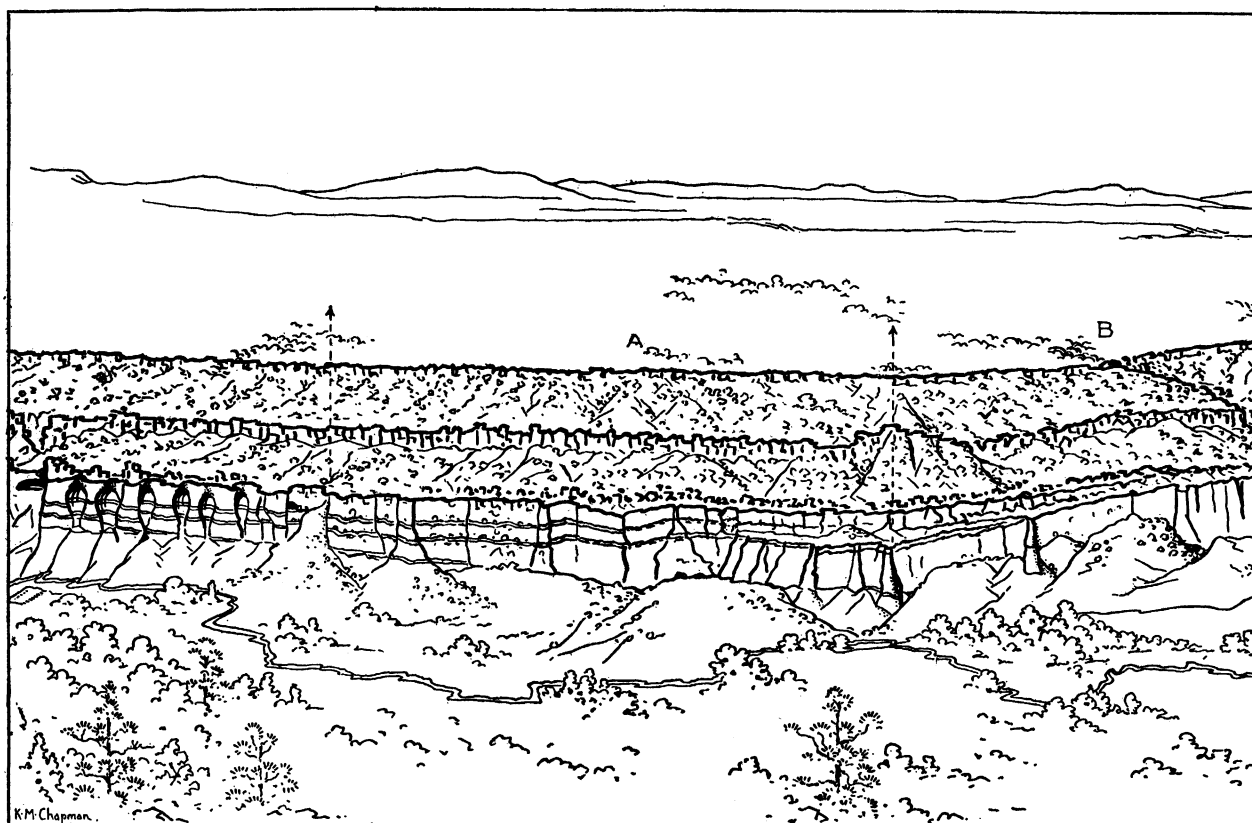


FIG. 85. — Ground-plan of talus village, Group D.

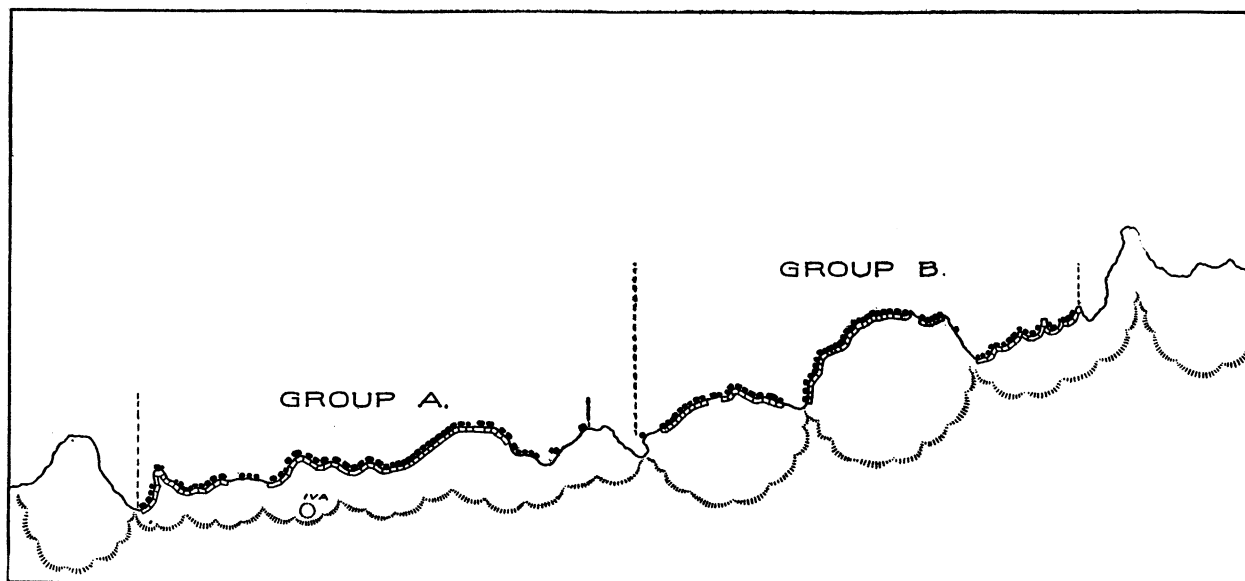
excavation done to lay bare foundation walls establishing the existence of houses of from two to four terraces built against the cliff. The series of panoramic views (plates xx, xxi, xxiii–xxv) shows the present condition of several of these talus villages. Mr Chapman's restoration of Group D (figure 84) shows that village in its original condition. (See also the ground-plan, figure 85.)

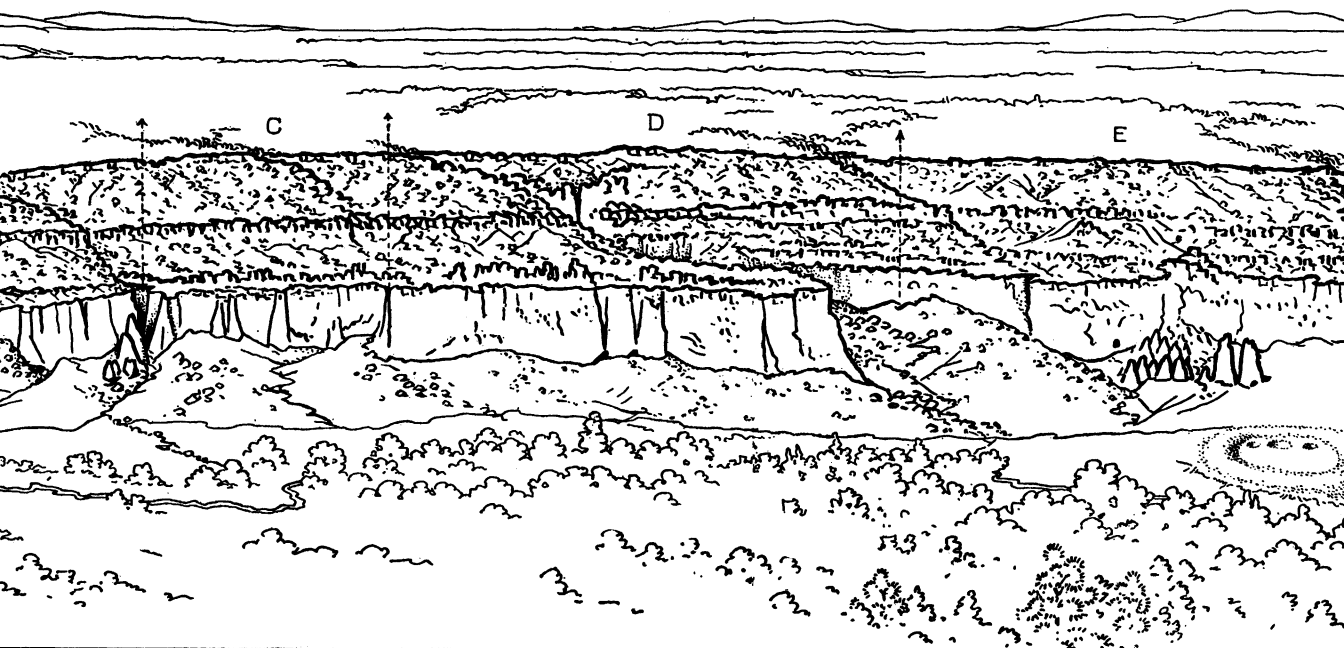
Nowhere else are the evidences of the existence of the talus pueblos so well preserved as in the Rito. Here we see not only the rows of holes in which rested the floor and the ceiling timbers of the buildings, but in many cases the plaster is still upon the rock which formed the back wall of the house in front. Of the thirteen talus pueblos found in the Rito de los Frijoles some contained perhaps not to exceed 20 to 25 rooms. The largest, shown in figure 84 as Group D, was a continuous house from one story to four stories high and extending along the cliff for a distance of 700 feet. Compare the map of village groups (plate xxii), the ground-plan of Group D (figure 85), the restoration (figure 84), and the photograph of this group (plate xxiv). Very little excavation has as yet been done in the talus pueblos. The uncovering of all these ancient villages will be a work of great interest and will extend over several seasons. Whether each separate village represents the abode of a single clan or whether their separation is merely dependent upon the structure of the cliff is yet to be determined.

The principal focus of population in the Rito de los Frijoles was the great community house of Tyuonyi. This was a terraced structure, roughly circular in form (see plan, figure 86). It

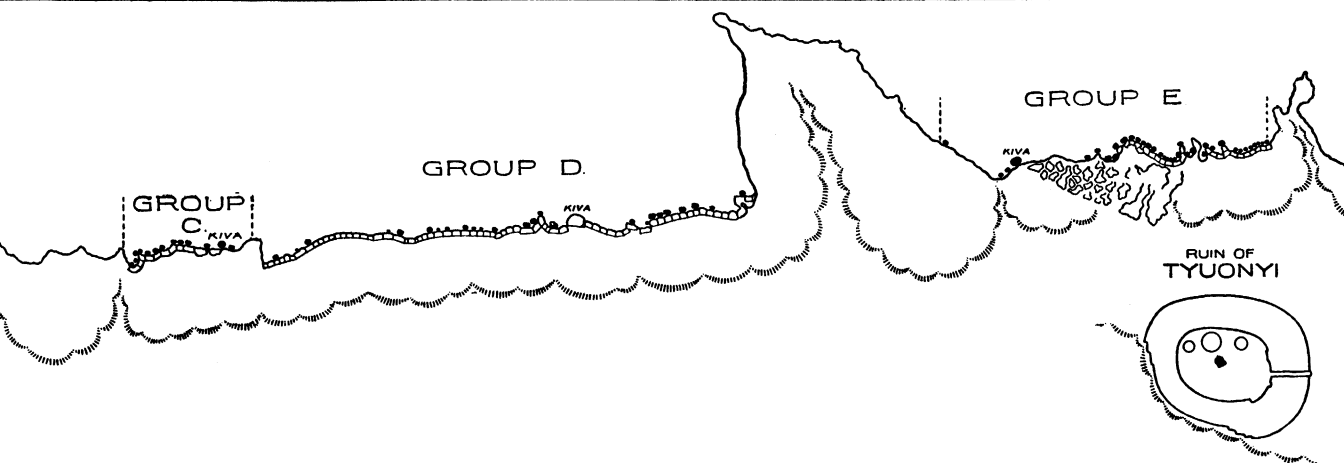


STRUCTURAL MAP OF THE NORTHERN WALL OF

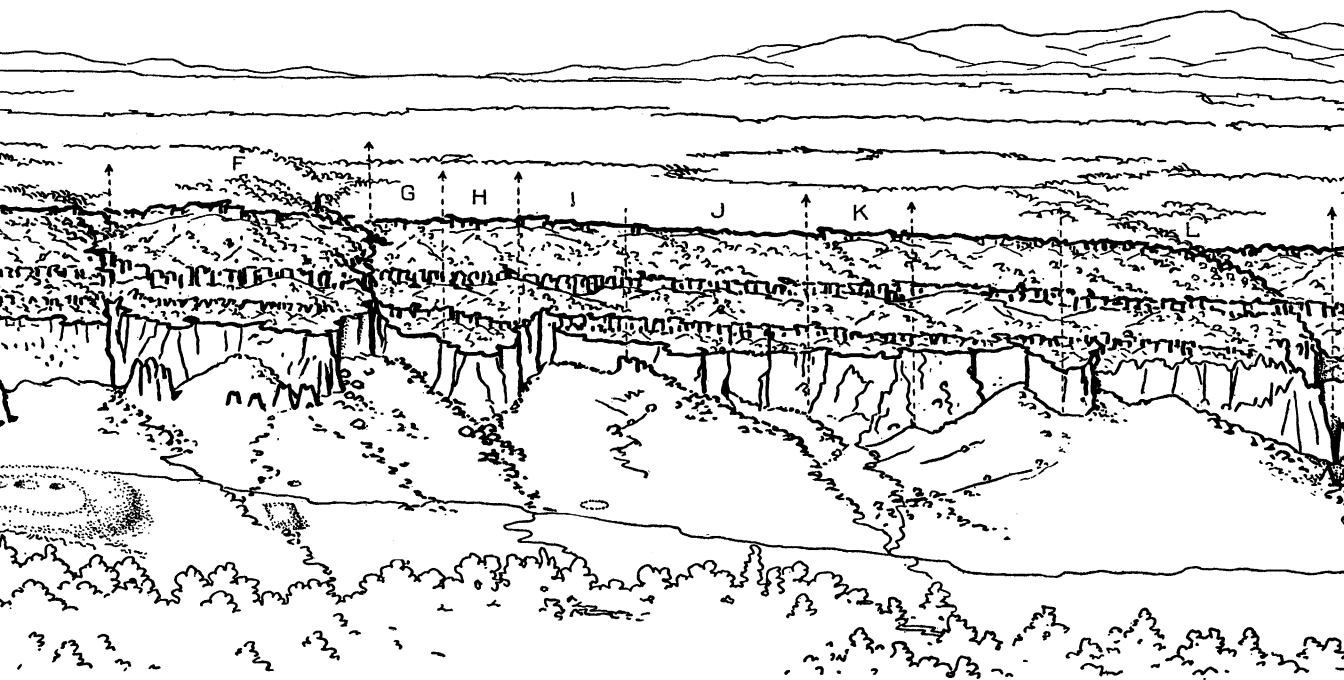




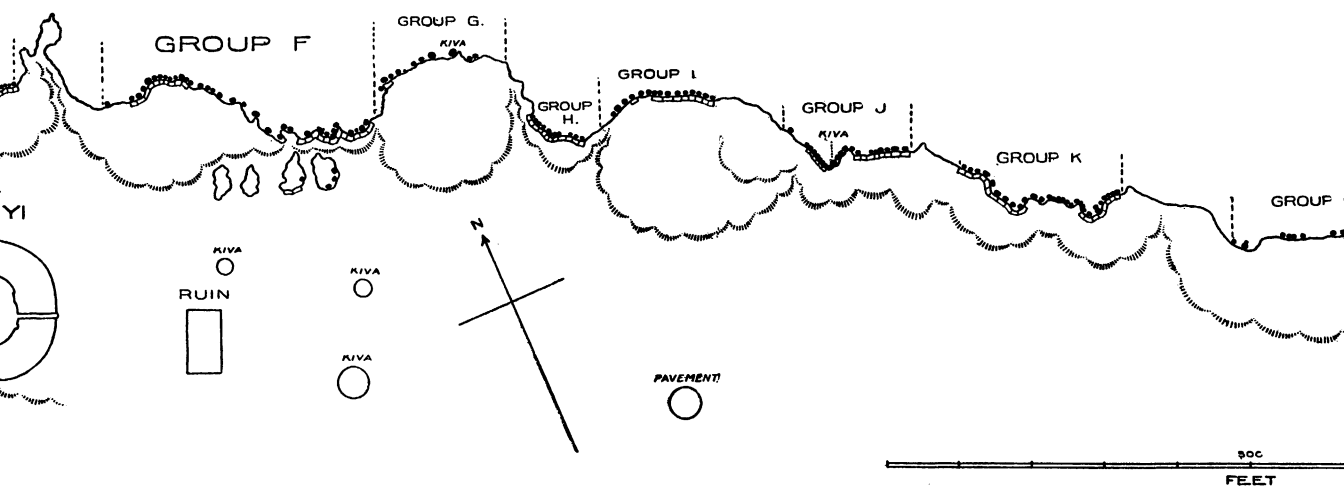
WALL OF RITO DE LOS FRIJOLES—BIRD'S EYE VIEW LOOKING NORTH. THE LETTERS INDICATE THE LOCATION OF TA



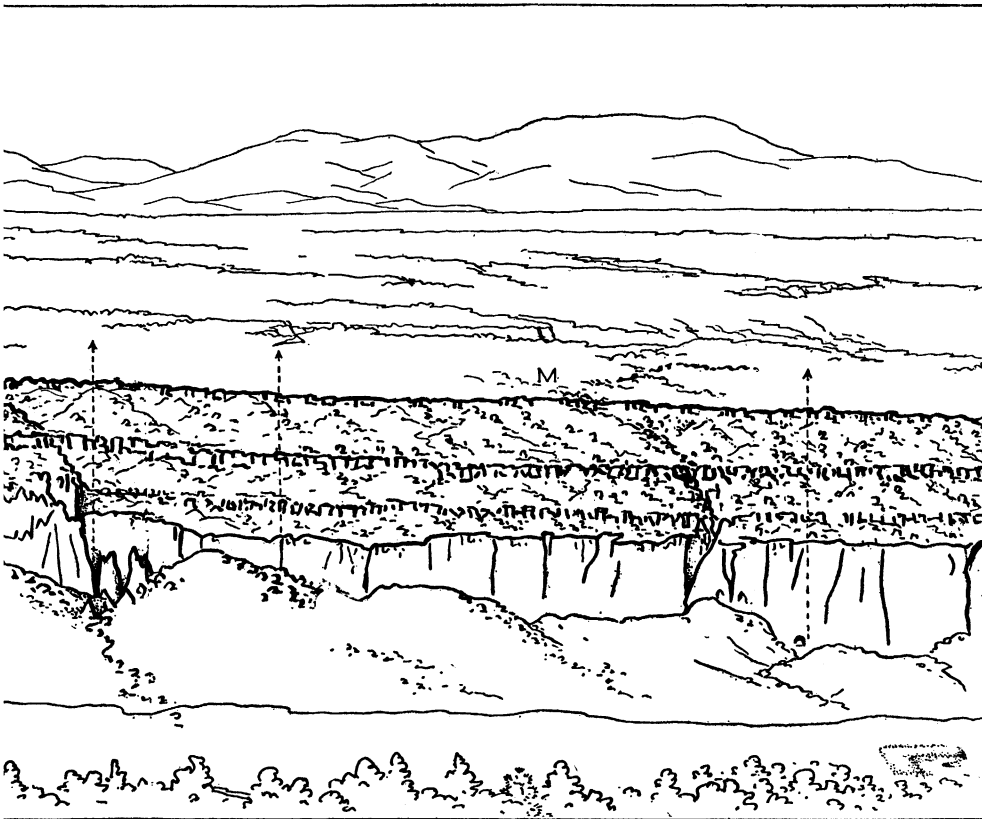
MAP SHOWING THE TALUS VILLAGES OF THE RITO DE LOS



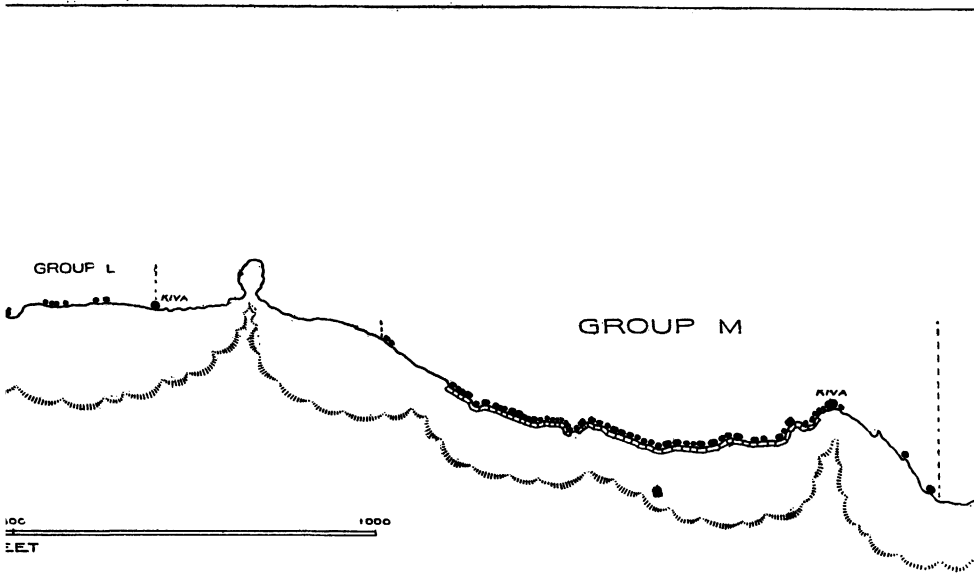
N OF TALUS VILLAGES. THE CIRCULAR MOUND NEAR THE MIDDLE IS THE REMAINS OF THE GREAT COMMUNITY HOUSE



DE LOS FRIJOLES BY GROUND PLAN



ITY HOUSE OF TYUONYI



was built of blocks of the volcanic tufa, and the amount of débris indicates that it was a three-story pueblo. Unlike the majority of the large community houses of this region, this building is somewhat regular in construction. As a rule these buildings seem to have grown by gradual accretions, single rooms or suites of rooms

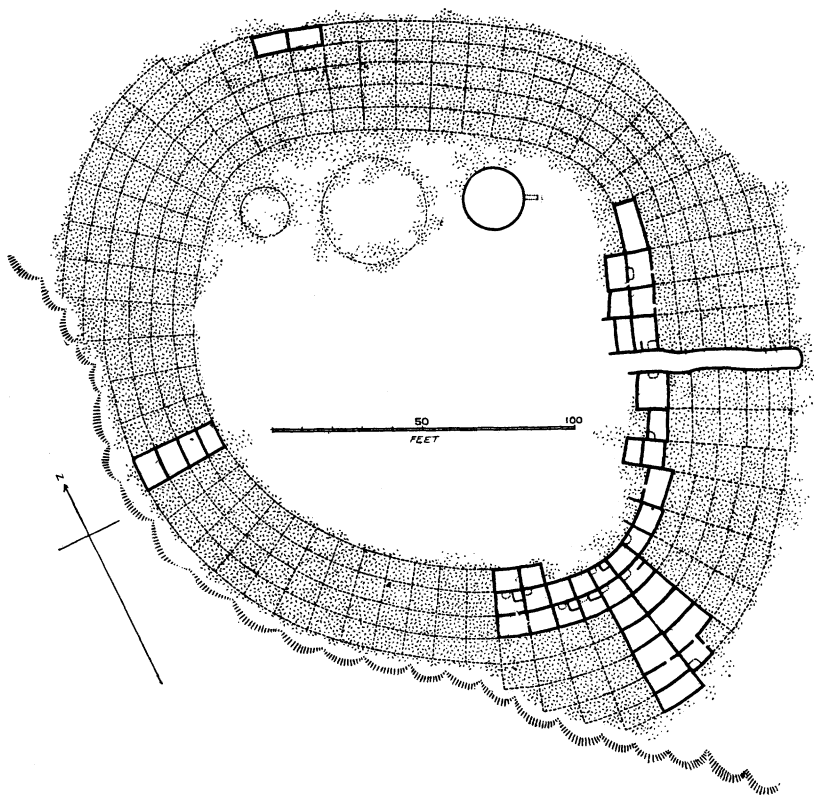


FIG. 86. — Ground-plan of community house, Tyuonyi.

having been added to the building to meet the needs of increasing families. Here there is a total absence of this irregularity of plan. It would appear that the entire building was planned and executed at once. The curving walls are not produced by simply changing the direction of the wall from room to room. The walls form curved lines. The thinnest part of the structure was at the southwest, where there is a flattening in the roughly circular plan, due to the

nearness of the creek. On the southeast the excavations have laid bare the ground-plan of the building as shown in the drawing. In all 44 rooms have been excavated in this building.

The detailed description of the building, its architecture and appurtenances, is reserved for the report to follow the excava-



FIG. 87. — Entrance to court.

tions of the season of 1909, when a much larger area will have been uncovered.¹ At present it may be observed that the building is not so well constructed as others that have been excavated in the Pajarito region, e. g., those at Puye and Tchirege. The walls are lighter, the stone hardly so well prepared, not so well laid nor so well plas-

tered. Neither is the flooring so firmly made. The form of the building was well calculated for defense. The living-rooms were entered from the inner court by means of ladders ascending to the roofs and then through hatchways and by ladders descending into the interior. The court, so far as can be determined, was en-

¹ It is expected that this report will appear in the next issue of this journal.

tered by a single passageway (see plan) on the eastern side. This has been cleared (figure 87). It is of irregular width, varying from six to seven feet, the side walls covered with adobe plaster and the eastern or outer end provided with a double system of barricades. Posts were planted across the passage at short intervals, and outside of this a stone wall partially closed, and, as occasion required, could be made to completely close the entrance.

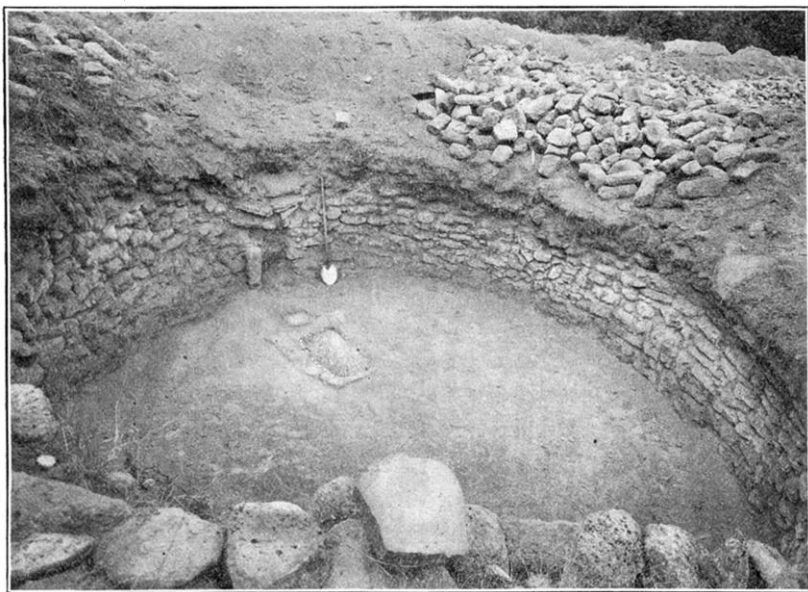


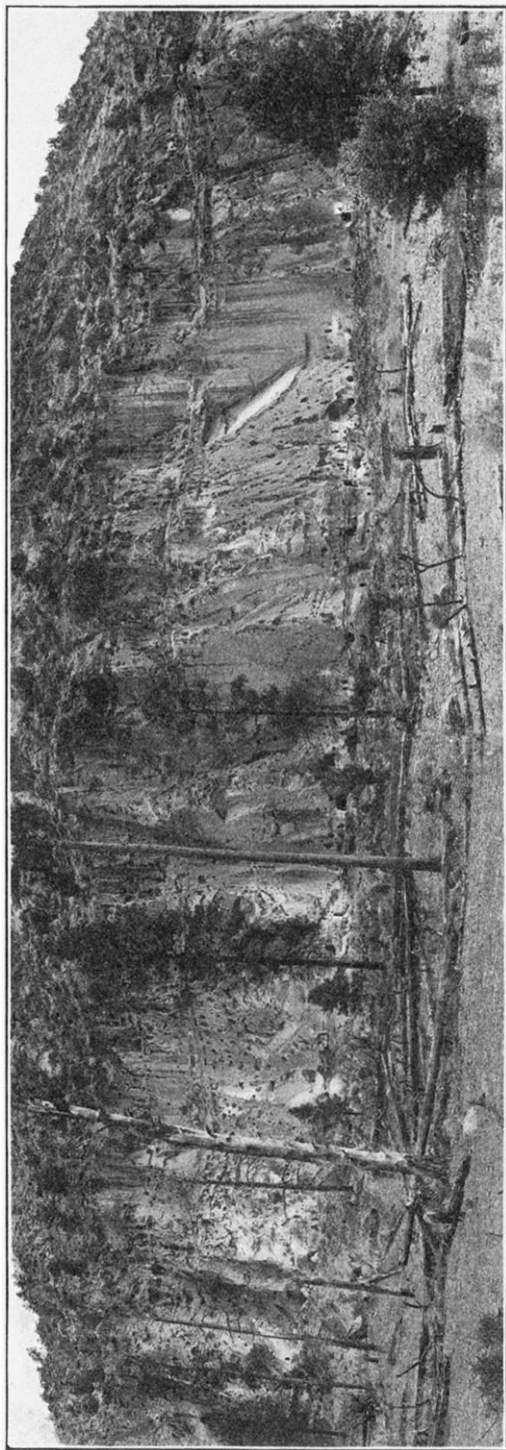
FIG. 88. — Excavated kiva.

An interesting fact was disclosed by the excavation of the interior court. The construction of the building is such that there has been no wash of soil into the inner court, yet the exploratory trenches produced in every direction from the center toward the inner wall show an accumulation of soil in the court, since the abandonment of the building, of from two to six feet in depth, the greatest accumulation being against the wall at the southeastern part. A study of the environment of the pueblo reveals no means by which the soil could have been laid down except by atmospheric deposit, and the situation is not exposed to drifting desert sands,

being in a deep sheltered verdant cañon that lies between lightly timbered grassy mesas.

One of the most interesting features of the archeological remains in this region is the kivas, the circular subterranean chambers which we know were the tribal sanctuaries. Three of these ceremonial rooms are found within the court of the great pueblo, one of which was excavated by us (figure 88). A few rods below the large community house was found the largest kiva that has yet been discovered. It has long passed for a reservoir. The excavation of this structure lays bare a circular room almost 42 feet in diameter, lined with a double wall of tufa blocks. On the floor near the eastern side is the fire-pit known to the Tewa Indians as the *sipapu*. In the floor are seen the holes in which stood the four columns that supported the roof of the kiva. The method of roofing will be shown in a subsequent paper. The entrance to the kiva was through a trap-door in the roof which was probably placed at the point of intersection of the diagonals drawn from the columns supporting the roof. If there was an altar it probably occupied a place on the floor between the *sipapu* and the wall back of the fire-pit, and was doubtless built in terraced form of stone and adobe, three or four feet wide, about a foot thick, and rising to a height of three or four feet. This conjecture concerning the arrangement of the altar is based on what is to be seen in similar sanctuaries now in use in various pueblos of the Rio Grande valley. It is not to be accepted as conclusive, for in the three kivas excavated by us in the Rito, the altar, if it ever existed, has disappeared.

In the wall adjacent to the fire-pit is a horizontal tunnel (figure 89) forming a passageway from the kiva to a vertical shaft a short distance outside the kiva walls (figure 90). This tunnel is somewhat more than two feet wide; its floor is a few inches above the floor of the kiva, and its roof, which was probably of wood, nearly four feet above the floor. On each side of the entrance was a stone post, and above, a heavy lintel of stone. The drawings of the tunnel and shaft shown in figures 89 and 90 give a type representation, certain features being shown as found and others being somewhat conjectural. The shaft itself was not large enough to permit of its being a practicable entrance, though the tunnel is of ample size. In the



TALUS VILLAGES, GROUP A, NORTHERN CLIFF OF TYUONYI

great kiva here described two such entrances exist, one on the eastern and one on the western side. In no other kiva has more than one such entrance been found. The function of this feature of the subterranean ceremonial rooms cannot be regarded as finally determined. It is a feature common to all ancient kivas, both in the Rio Grande and the San Juan valley, but does not exist in the kivas of the modern Pueblo towns. It is what Dr J. Walter Fewkes, in his report on the excavation of Spruce-tree House in Colorado, describes as a device for the ventilation of the kiva.

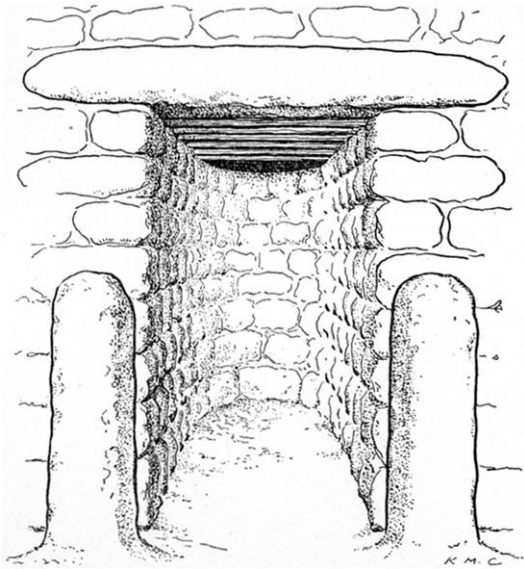


FIG. 89. — Interior of kiva — ceremonial entrance.
(Restored.)

I am not yet prepared to accept Dr Fewkes' determination, nor am I inclined to oppose any view of my own to that of the distinguished scholar who has long been my teacher in American archeology. I simply await further evidence on this interesting point, and for the present continue to call this feature of the kiva the "ceremonial entrance." Whatever may have been its function, it was doubtless the same throughout the Pueblo region. An examination of more than a hundred examples in southern Utah and Colorado, in the Chaco cañon, New Mexico, and the Rio Grande drainage, shows that while this appurtenance of the kiva varied greatly in form and construction, the same principle prevailed throughout. In Utah two sticks are usually found in the shaft, crossed at right angles.

In the Rito de los Frijoles kivas are found in three situations, viz., contiguous to the pueblos in the valley bottom, sunk in the

talus in front of the cliff-villages, and excavated in the walls of the cliff. It seems likely that each group or village possesses its own kiva, and this has an important bearing on the question of whether or not each of the seventeen separate groups of houses in the community, outside of the great pueblo, constituted the abode of a clan.

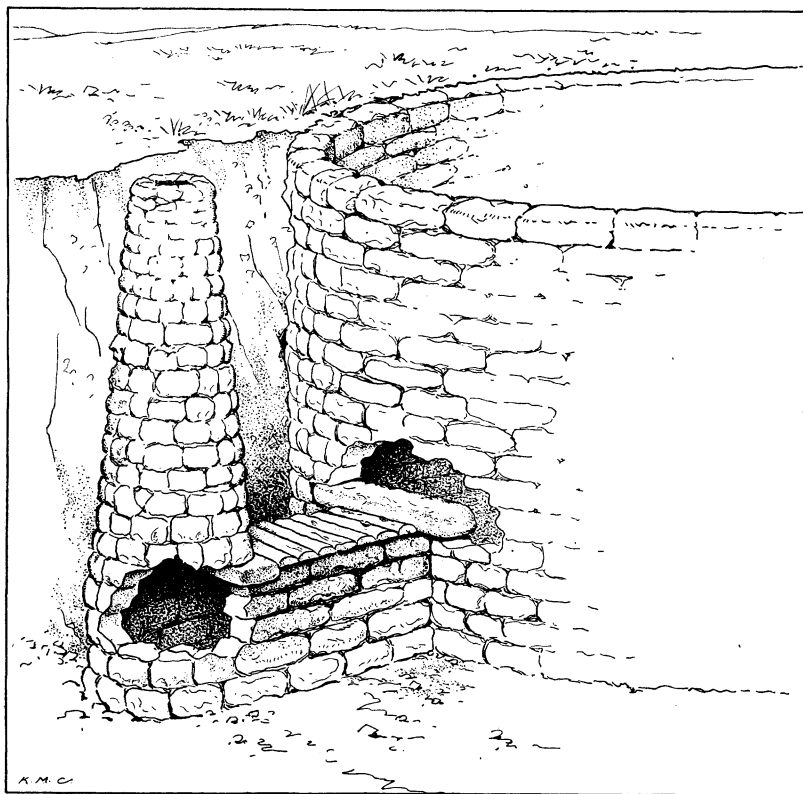
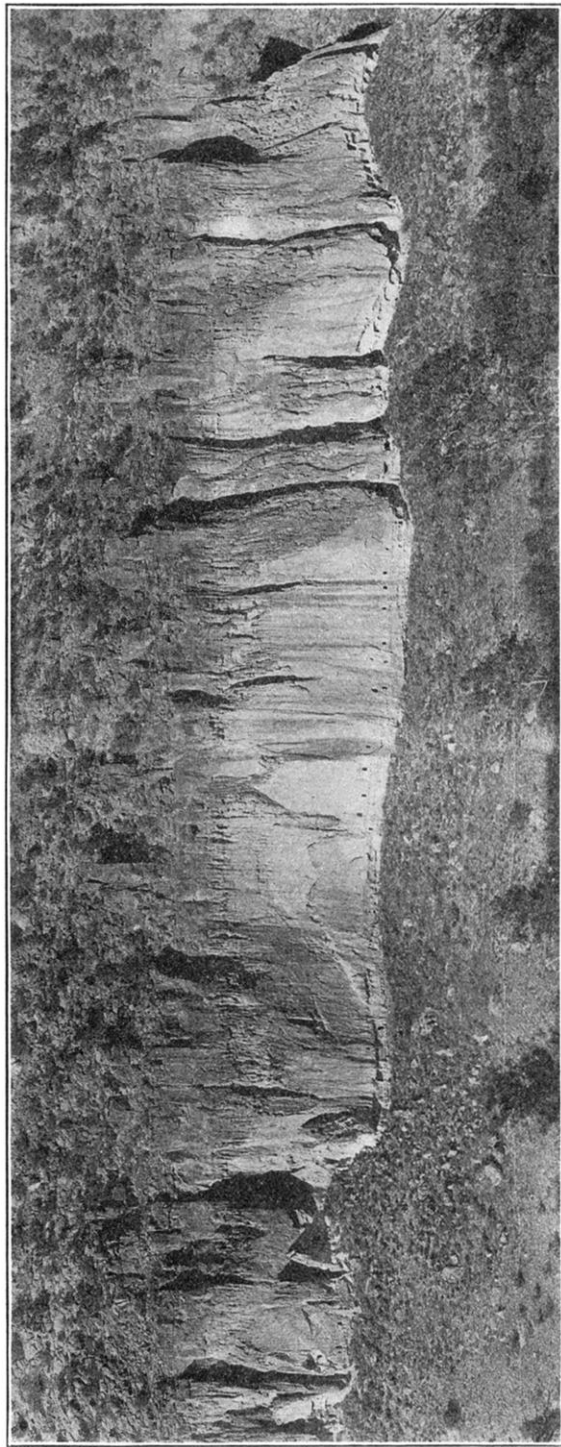


FIG. 90. — Exterior of kiva. (Restored.)

There is much to indicate that the dual system of tribal organization existed in the Rito de los Frijoles. It is probable that the great kiva above described was the sanctuary of either the Winter or the Summer people.

A few hundred yards to the east of the great kiva is an object that presented an intricate problem. It consists of a circular floor



TALUS VILLAGES, GROUP D, NORTHERN CLIFF OF TYUONYI

constructed of tufa blocks laid in concentric form. Many conjectures arose with reference to the function of this circular platform: that it could have been a threshing floor has been rejected for the reason that the natural earth, properly smoothed and beaten, forms

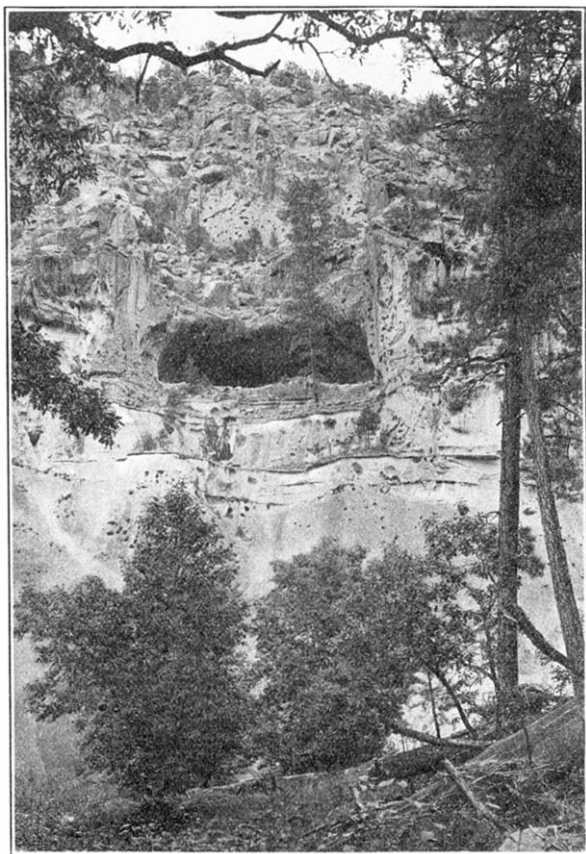


FIG. 91. — The great ceremonial cave.

the best possible threshing floor in the Southwest. The solution that appeals most strongly to the writer is that this circular platform is what remains, that is, the floor, of the other tribal kiva that was built entirely above ground, as is the case at Santa Clara and

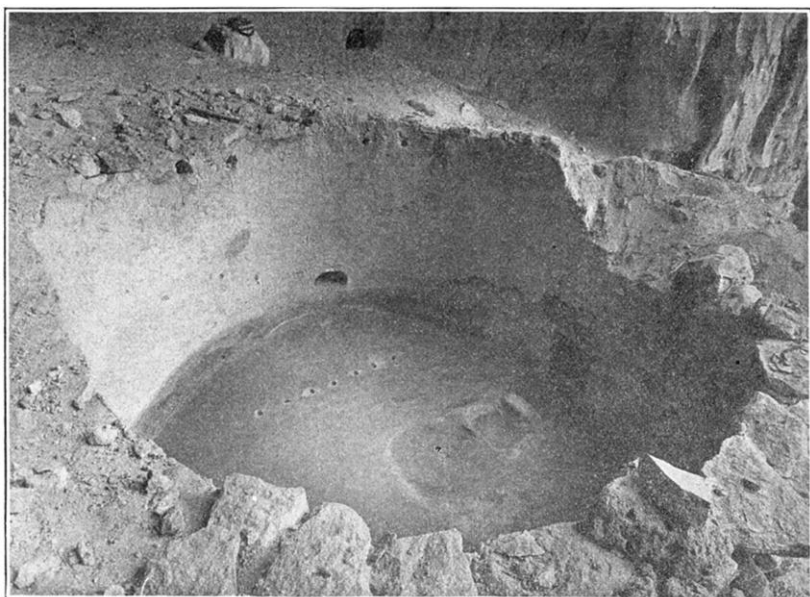
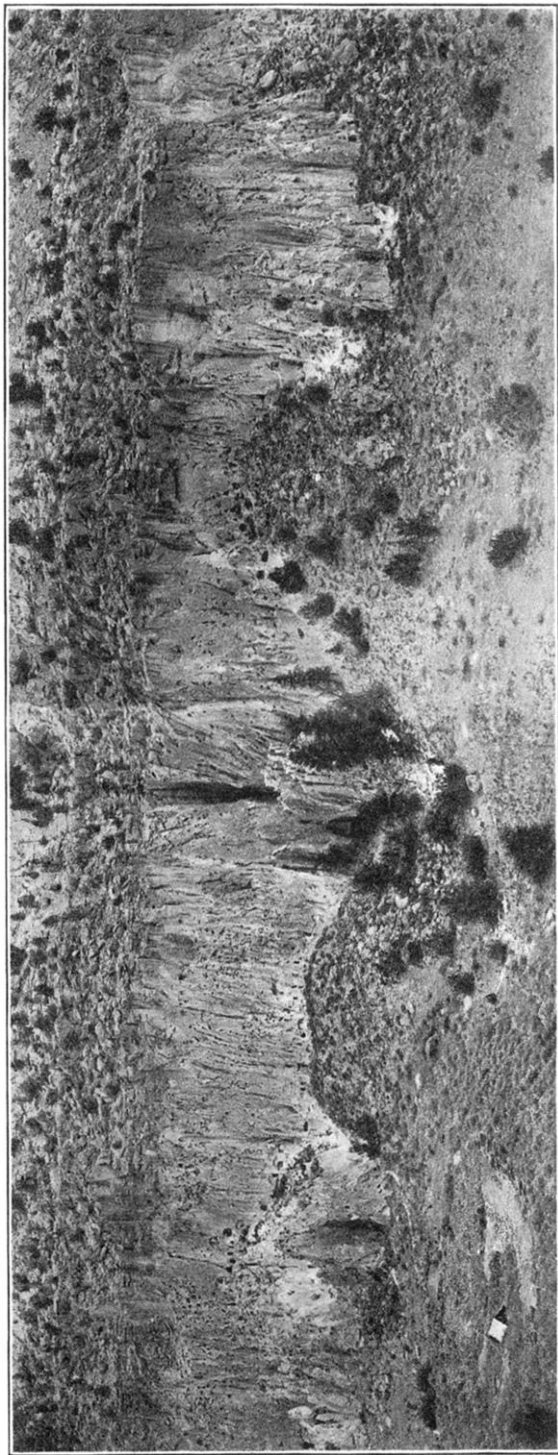


FIG. 92. — Kiva in great ceremonial cave ; after excavation.

at San Ildefonso, and that its circular walls have been entirely removed. At a short distance farther down the valley such a circular stone building is still standing. It is not believed that this building is of aboriginal origin ; indeed, the Rito de los Frijoles was occupied more or less for two centuries by Mexicans. We know that at one time it was the favorite resort of outlaws who found in it a secure refuge. It would have been natural for such persons to remove the ruined walls of a building such as has just been supposed, and with the stone to construct a similar building for residential purposes near by.

Another interesting feature of the archeology of the Rito de los Frijoles is the great ceremonial cave, situated high in the face of the cliff just opposite the upper pueblo (plate xxvi, figure 91). This cave is entered with considerable difficulty, all vestiges of its ancient entrance having disappeared. The cave has contained several rooms built against the wall, and back of these were excavated rooms. In the bottom of the cave was a kiva excavated in the rock



TALUS VILLAGES, GROUPS E AND F, NORTHERN CLIFF OF TYUONYI

floor (figure 92). This we cleared of its accumulated débris, finding numerous interesting articles well preserved because of their protection from the elements. Specimens of matting were taken from the kiva in an almost perfect state of preservation, also perfectly preserved grains of red corn were found. This is one of the few ceremonial caves found in this region. One long known to us is that called "La Cueva Pintada," or The Painted Cave, in the northern wall of the Cañada de la Cuesta Colorada (figure 93). This cave has its walls covered with pictographs painted in red, white, and black. The ceremonial cave at the Rito has some features in common with the Painted Cave, but contains no wall-paintings.

The problem of how the people of the Rito disposed of their dead proved to be an obscure one. It is stated by Bandelier, in *The Delight Makers*, that fascinating ethno-historical romance of the Rito, that cremation was practised. It is probable that this



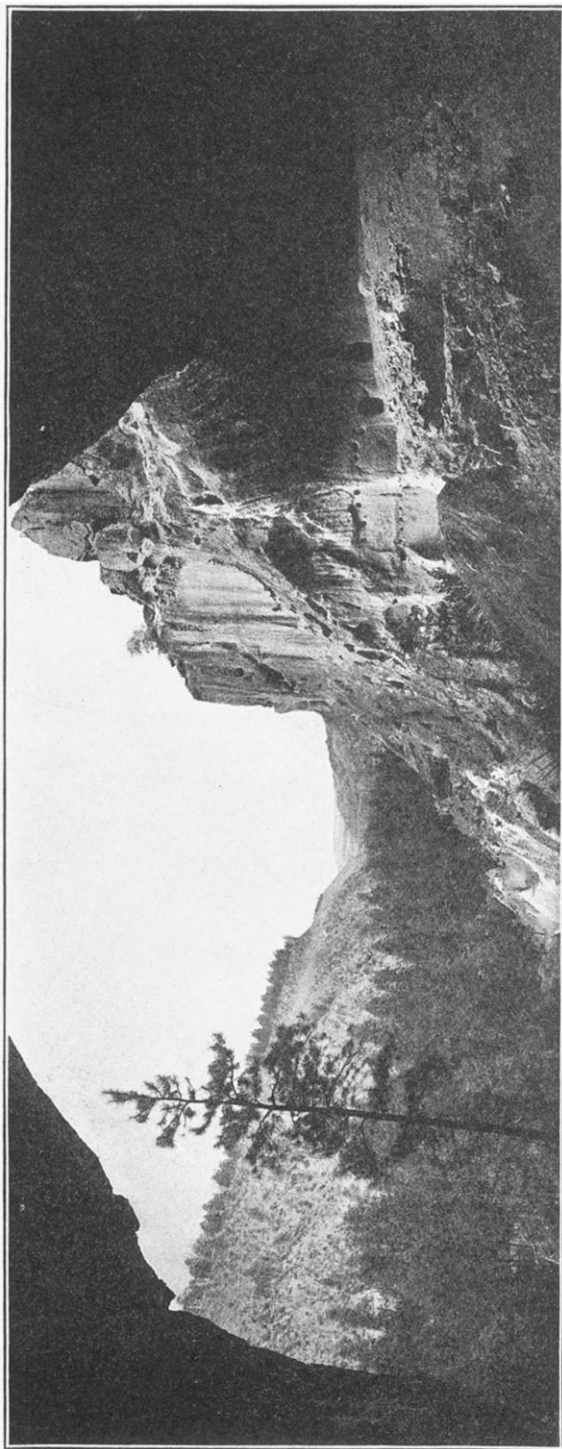
FIG. 93. — La Cueva Pintada.

belief was based on the traditions of the Cochiti Indians with reference to the custom among their ancestors. It should be borne in mind, however, that in a large number of cases in this region where living tribes have claimed ancient sites like this as the homes of their ancestors, it is done for the purpose of assuring property-rights which these villagers have desired to maintain and which seemed to them to be strengthened by the claim that these were their ancestral homes. Close investigation and the removal of the reason for



FIG. 94. — Ruins of the "Pueblo of the Stone Lions."

setting up such claim have in some instances brought about the repudiation by the Indians themselves of this tradition. Such was the case at Santa Clara with reference to the Puye. So traditions of cremation among the Cochiti people cannot be accepted as conclusive in their application to the ancient people of the Rito until there is some further investigation of the question of their relationship. Exploratory trenches carried in every direction about the great community house of Tyuonyi revealed no general community



VIEW FROM INTERIOR OF THE GREAT CEREMONIAL CAVE

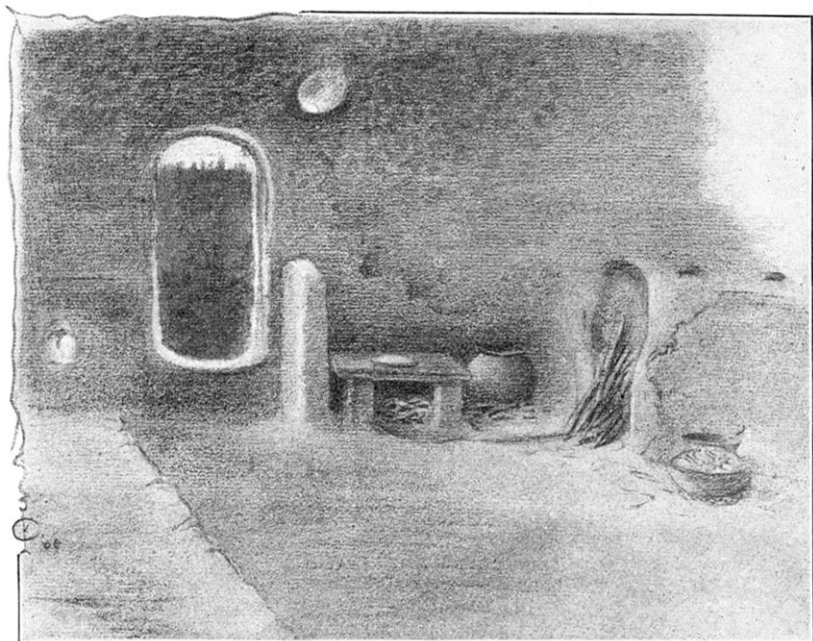


FIG. 95. — Corner of cliff room. (Restored.)

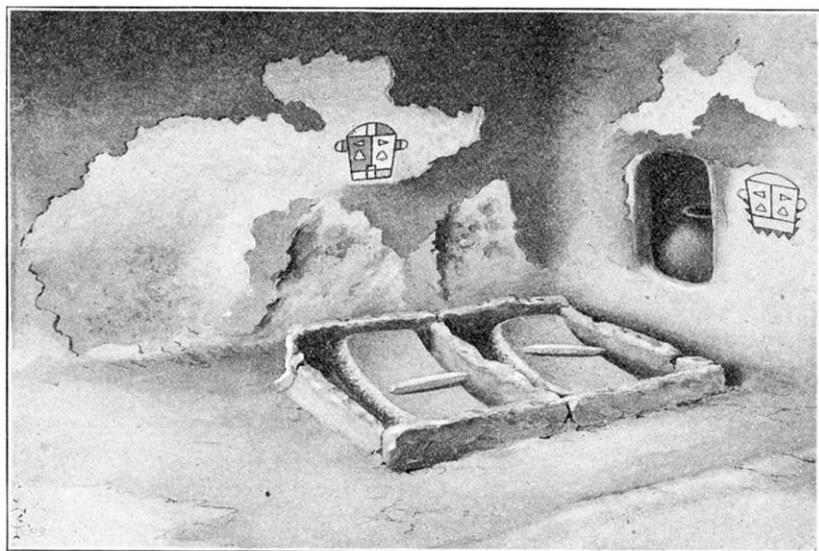


FIG. 96. — Corner of cliff room. (Restored.)

burial place such as we expect to find in close proximity to every great stone pueblo of this region. Toward the end of our excavating season, when we had almost decided to accept the cremation theory, a series of trenches through the talus in front of Group D, about two-thirds of the way down to the flood plain, and carried parallel to the cliff wall, disclosed a number of burials. It now seems likely that talus burial was the prevailing mode. All the skeletons found were buried separately in the talus and were not accompanied with pottery or other utensils. Some excavations were made in the ruins of the small pueblos in the valley bottom below the great community house, and thirty-five rooms were cleared in the ruin on the cañon rim south of the Rito.

In addition to the excavations made at the Tyuonyi settlements during the season, a considerable amount of exploratory trenching was done at the ruin of Haatse, a pueblo lying on the mesa top south of Cañada de la Questa Colorada, a distance of perhaps ten miles in an air-line from the Rito. Several rods of trenches were run also about the "Pueblo of the Stone Lions" on the Potrero de las Vacas, about six miles in a straight line south of Tyuonyi (figure 94). Besides this a number of rooms were excavated in the pueblo. This site is especially known on account of the "Shrine of Mokatch" found near by. This noted shrine consists of a stone stockade inclosing the effigies of a pair of pumas, or mountain lions, which lie extended at full length side by side, carved in high relief from a great tufa boulder in situ. Descriptions of it will be found in the works of Bandelier, Lummis, and Starr, and the latter has done excellent service by preparing casts of the idols in plaster, the originals of which may be seen at his department in Walker Museum, Chicago University, from which a number of copies have gone to various museums throughout the country.

The results of these various excavations will be described in the detailed report of the excavations at Tyuonyi, to appear in a subsequent paper. Detailed description of the material found will also be made in a separate report. The excavations this season were less productive of material than those of former years, but the work will result in substantial additions to our knowledge of the archeology of the Rio Grande drainage.

Not the least of the results to be kept in view in all archeological work now carried on in the Southwest is that of the preservation of our ancient ruins. The foundation for this was laid in the laws for the preservation of American antiquities passed by Congress in 1906 which, however imperfectly they have been executed by the departments having control over the lands still under the custodianship of the Government, nevertheless prepare the way for the conservation of the remains that are essential to the study of the history of

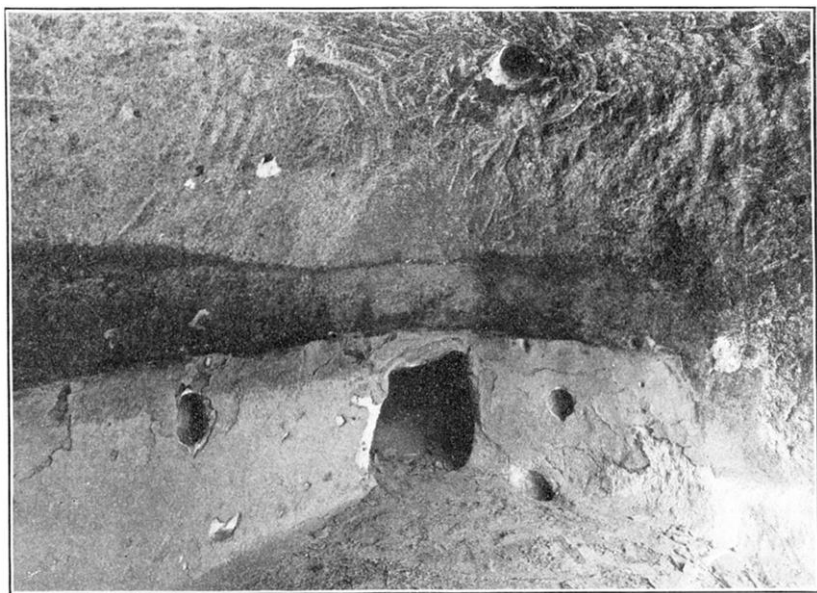


FIG. 97. — Interior of cliff chamber.

man in America. . The educational value of these fragments of culture-history is very great, and it is only by making them accessible, opening them to the understanding of the public by the excavation of the buildings and the recovery of the articles buried therein for study and exhibition in museums, that their value can be realized. So in all excavations made, not only the recovery of specimens but the preservation of all structural remains is kept in view, and also that these remains shall so far as possible be made to tell the story

of human history as it was enacted here, the life and customs of the people. With this end in view a beginning has been made in a work, new to American archeology, which may be capable of quite extensive use in places that can be kept under adequate protection, viz., the restoration to their proper places in the buildings, especially

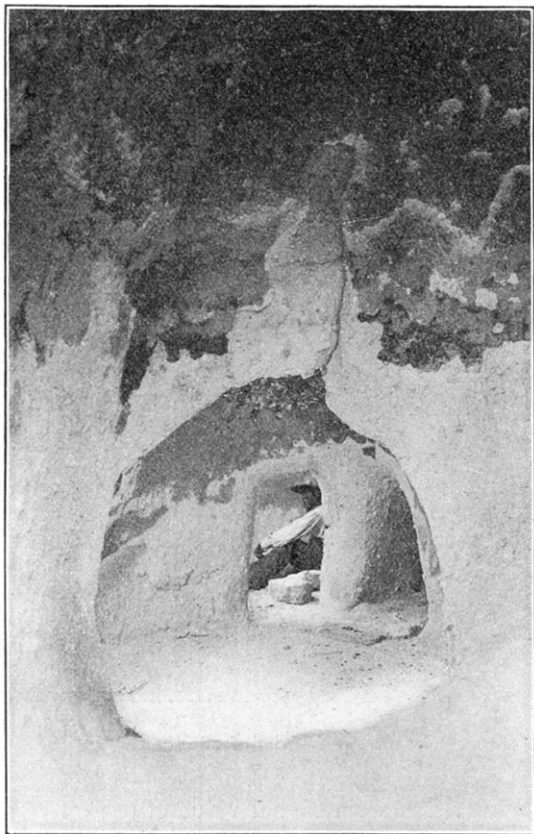


FIG. 98. — Interior of cliff dwelling.

the cliff-houses, of the heavier and more common articles of domestic use. Nowhere else can the articles recovered from the ruins be so instructive as in their proper relation to the houses and rooms in which they were used. Until absolute protection from vandalism can be assured, it is of course unwise to so place the smaller and

more valuable articles. The reproductions from Mr Chapman's sketches illustrate our first attempt of this kind. In one of the best preserved cliff-houses of the Rito, the various articles of domestic use have been restored to their proper places. In the corner adjacent to the door (figure 95) is seen the fireplace, with fire-dogs, comal stone, fire-screen, and cooking-pot in place as when in daily use, with the tinaja (water jar) and gourd dipper near at hand. In another corner (figure 96) are to be seen the meal-box with the necessary appurtenances for grinding the corn, i. e., metates, manos, and macetas. In a small alcove room adjacent to the meal-box is seen the tinajon, or large storage vessel for containing the prepared meal. Above, near the ceiling and not visible in the sketches, are stretched the strings of rawhide on which are hung strips of drying meat, skins, etc. On one side of the room are the place and material for pottery making — clay, mortars, paint-pots, smoothing stones, modeling forms, and vessels illustrating the various stages of the potter's art. It is believed that such a restoration will constitute a field museum of great value.

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